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Director's Column

One thing that Montana hunters and fishermen will never be accused of is timidity in voicing their collective and individual opinions on matters affecting fish and game. It is this fervor that has helped to maintain Montana as one of the forerunners in quality outdoor recreation. It is the dollars of the hunters and fishermen that not only aid in maintaining hunting and fishing opportunities, but also aid in many other things such as protection of songbirds, control of predatory animals, and establishment of access to rivers and other recreation areas which are used by lovers of the outdoors, many of whom are not license buyers.

Of late, outdoorsmen have naturally enough turned their attention to the proposals for raising the cost of hunting and fishing license fees. The varied feelings expressed are known to every newspaper reader, radio listener, and TV watcher, so the pros and cons of this subject will not be belabored here. I would like, however, to clear up some points on which, judging from editorial comments, there seems to be considerable misunderstanding.

Some writers have asked if the Fish and Game Commission and department don't get too far afield in many of their interests. Reference is usually made to the commission's keen interest in water and range use and the use of insecticides.

The legislation which created the Fish and Game Commission has given them the following responsibilities: "The commission hereby created shall have supervision over all wildlife, fish, game and nongame birds, and waterfowl, and the game, and fur-bearing animals of the state, and shall possess all powers necessary to fulfill the duties prescribed by law with respect thereto. . ." Since the very existence of all fish, birds, and mammals is tied directly to water and land, there is no land and water use that does not somehow affect their welfare. If the commission is to fulfill its obligation of supervising, which includes managing wildlife, then it is imperative they have a knowledge of and an interest in land and water uses that affect fish and wildlife. The fish and game's prime responsibility is to the resource that it is charged with supervising. As long as proper management of the fish and wildlife resource is uppermost in the commission's mind, then the people of Montana are being served as best they can be.

Another statement often made is that the legislature has no control over the Fish and Game Department. I believe that such statements underrate both the power and the wisdom of the Montana legislative system. The laws under which the fish and game must operate are determined by our legislators. The amount of money that the fish and game can spend is determined by the legislators when they act on the department's budget. The department can not spend more money than they are budgeted for, even if the income exceeds this amount. During nearly every legislative session, legislators have looked into the operations of the Fish and Game Department and have given them a clean bill of health. The legislators are given biennial reports on fish and game activities prior to each legislative session. All files are open to legislators.

There have been questions also as to whether or not the department's financial operations are audited. Yes, they are audited repeatedly. The department's budget is not only studied and approved by the state budget director and the legislature, but in addition, the state bank examiner and several federal agencies annually audit the department's accounting. The state bank examiner is paid by the department for the time consumed in auditing.

Incidentally, the department has many other costs of which persons are not generally aware. Rent is paid by the fish and game to the state for office space they occupy in the capitol complex.

This amounts to about $18,000.00 per year. The department also makes payments in lieu of taxes on lands which they own, and payments to the state controller for his budgeting and accounting procedures. Other payments go such places as the state auditor, and department of administration for I.B.M. services. So you see, the Fish and Game annually has considerable hidden costs which go to the state general fund and to counties. Several of these expenses are not paid by other state agencies.

Lastly, there is obviously confusion as to how the department is financed, since reference is often made to the department's spending "taxpayers' dollars." Hunters and fishermen, not the taxpayers in general, foot the bill for fish and game management. License sales are the major source of income that is used toward hunting and fishing oriented programs. Considerable money also is received from federal excise taxes on sports arms and ammunition, and on sport fishing equipment. This money is allotted to states on the basis of area and license sales. The funds are earmarked for specific purposes and are available on a matching basis —75c allotment to each 25c spent by states. There are other conditions which regulate how much money may be received.

A certain amount of money is allocated from the state's general tax fund for operation of the **state parks.** This money cannot be diverted for other uses. During the past two years, the allocation has been barely enough to maintain existing park facilities. There has been additional money available, however, for use on parks and other recreation areas which adjoin water areas where motorboating is offered. This has been from a one percent tax on engine fuel. This money has been a real help in providing recreational facilities at water-based parks; however, the courts have recently ruled the use of this tax in such a manner is illegal. Precisely what impact this will have on the parks program is not known at this time. It will be a real blow to the parks program if some other source of funds is not arranged.

A third source of income for the construction of outdoor recreation facilities is from a users fee which has been levied on some federal recreational areas. This money is allotted to states primarily on their needs and is received on a 50-50 matching basis. This revenue has been made available to state, county, and municipal agencies. There is, of course, a limit on the amount which may be received by any state or by any agency.

So you see, the money received for fish and game oriented uses and for state parks uses is actually two separate accounts, and one does not supplement the other. The money earned by operation of the Lewis and Clark Caverns is turned over to the state general tax coffers. Only the parks division receives anything from the state's general tax fund, and this has been minimal.

THE QUESTION OF SAGE

To many, no other living thing is as typical of the west as sagebrush. To the pioneer it must have seemed to be everywhere. For mile after weary mile it crushed beneath the steel-rimmed wheels of cumbersome conestoga wagons and its pungent smoke hovered over the evening campfires. On the canvasses of Charles Russell, the sage-studded prairies and buttes melt into purple against distant horizons.

Probably the pioneer and cowboy didn't think much about sagebrush. It was just there. Cattle and sheep fed among the clumps and to some extent upon them. The oily roots and stalks offered fuel for brewing coffee and frying bacon. Antelope, rabbits, sage grouse and other animals were to be found there.

But as the free range began to disappear and sodbusters fenced off their homesteads, many acres of sagebrush gave way to the plow. People became thicker and needed more meat. With land harder to come by each acre had to produce more. Stockmen began to eye the large expanses of sagebrush. Here, they considered, was a plant of questionable value. It offered little forage for domestic

In a sagebrush spray study area near Winnett, Fish and Game personnel hide behind a ridge of crusted snow waiting for antelope to be brought into wings of a live trap. At 14 degrees below zero, old sleeping bags help to insulate from the cold ground. Hazers may have to sit or lie quietly for over an hour behind their snow blind.

In a swirl of snow whipped up by hovering helicopter, antelope are hazed the last few yards into the trap by men holding a canvas.

animals. Worse yet, it competed with grass for space and moisture.

The solution seemed simple enough—kill off the sage and raise more grass. Early methods at sage extermination were by fire and by mechanical means. One of the first mechanical methods consisted simply of an iron rail which was dragged over sagebrush to break up the plants. Later various machines were devised to batter and smash the unwanted shrubs. But sage is tough and persistent, and often sprang back almost as fast as it was beaten down. The war against sagebrush appeared to be one of sweat and determination. That was before the development of plant-killing chemicals. Now, thousands of acres of sagebrush can be sprayed in a short time. The leaves wilt under the withering chemical rain, dry, and gradually disappear, leaving miniature forests of naked, twisted stumps and stems.

The elimination of sage will usually result in more grass per acre. It can backfire when unwanted plants such as cheat grass invade sprayed areas. But to the men and agencies who manage lands that are to serve a variety of needs, grass production is but one piece of a complex picture. This single piece, or phase of land management must be fitted with others in a proper perspective if the public is to receive full value of their public lands under the multiple use concept. The total effect of spraying cannot be measured by increased pounds of grass production. Actually, under most conditions sagebrush becomes a serious competitor only when grass is in low vigor. This is often the symptom of overgrazed ranges.

When it comes right down to details, the **total** effects on an area resulting from the removal of sagebrush are not known. It has been aptly stated by one range expert that "Perhaps we make no provisions to gather facts from them (range rehabilitation programs) ending up only with dim recollections of what we started with and only impressions of what we have."

What happens when an area is sprayed? The sage dies and the grass grows. Is it really as simple as that? Over the ages plants and animals have developed simultaneously; consequently, the plants and animals that are found in a given area seem to fit together. They are tied closely in communities by needs, climate, and soil conditions. So closely knit are these associations that any change in one member of the community can't help but be felt by others. For example, sage grouse are so closely tied to sage brush that they can't live outside of sagebrush areas. Just what densities of sage and what disperson of grasslands within sage areas are optimum is generally, but not fully understood. Antelope are users of sage areas, and in some places sagebrush is an important part of the diet for mule deer and even elk. Other plants, notably forbs indigenuous to sagebrush communities also decline with the reduction of sagebrush. Certain wildlife seasonally depend heavily upon these forbs as food.

Questions on **total** effects of spraying have been nagging managers of public lands. The Bureau of Land Management, with about one fifth of Montana's lands under their jurisdiction, is very interested since much of the BLM land is sagebrush type. With multiple use in mind, perhaps it is possible, through proper management, to improve these ranges for both

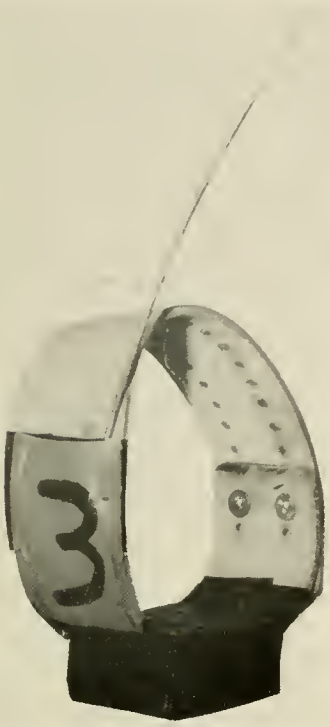
Warm and steaming from their run to the trap, antelope are given a cooling off period before they are banded.

Bewildered antelope is weighed and has tooth examination for aging purposes. Animals are worked as rapidly as possible as they are very excitable.

livestock and wildlife. Proper management techniques can best be arrived at through programs designed to check on the effects of sagebrush spraying. Managers will want to devise methods to alleviate those effects that are harmful and to make use of the effects that are beneficial.

The Bureau of Land Management and the Fish and Game Department are cooperatively working on a research program in sagebrush areas east of Lewistown where syraying is contemplated. The study was begun in 1965 and will necessarily extend over a period of several years. Complete information on the area is being gathered prior to spraying so that conditions can be compared to those following spraying. Information will run the gamut from soil and climatic conditions, through the makeup and densities of plant life to the habits and production of local animal life. Scheduling calls for various spray techniques over various land patterns during the spring of 1968. Spraying will be followed up by further investigation to determine its effects on the plant and animal complex.

When the program is completed, there will be better guidelines to follow when spraying sagebrush on public lands. Hopefully, methods can be devised that will prove beneficial to all interests.



One of three radio transmitters that were fitted on antelope in the Winnett area.

With black tongue stuck out in protest, an antelope is fitted with a plastic marker.

PROBLEMS IN PLANNING

With prospects of acute water shortages in the near future, the Congress has ordered comprehensive planning studies for all major drainages within the United States. These studies are intended to sum up the nation's water needs for all purposes as far into the future as the year 2020. At the present time various federal agencies are involved in planning for the use of Montana water in two separate studies, the Missouri and Columbia-North Pacific framework studies.

Essentially, these studies are being carried out by dam building agencies and can be expected to yield conclusions that will call for construction of a rash of dams. In the spirit of multi-purpose planning fish and wildlife interests have been invited to submit a plan outlining their needs to fulfill the demands expected to be placed on the fish and wildlife resource up to the year 2000 and beyond. The subtle direction of the planners, however, might be revealed by examining how funds are allotted for preparing various segments of the plan. An appropriation of $5,000,000.00 was made to compile the Columbia-North Pacific framework plan while $6,000,000.00 was appropriated for the Missouri River comprehensive framework plan. When time came to write these reports the Fish and Game Commisison was asked to write the appendix that would inventory their present fish and wildlife resource, project the demands on that resource from now through 2020, and suggest things that should be programmed to meet the projected needs. The appropriation made to the Fish and Game Commission to accomplish this task was zero dollars and zero cents. In other words, if the Fish and Game wanted the wildlife appendix of this report to be meaningful, it would necessitate dropping existing programs and writing the report according to their outline. What the commission was offered was strings with no money attached.

The beautiful pamphlets and information bulletins published by these planning groups, while these reports are being written, go to great length to promote the theory that fish and wildlife are a part of a great planning effort; however, if the facts of funding and structure of the final summary and planning boards are scrutinized, it appears that this is mostly a whitewashing of the facts.

The Fish and Game Commission is well aware of the fact that it is essential to plan for the future of

our fish and wildlife if these resources are to survive the competition from other uses of land and water. It is also aware of the facts that such planning takes time, manpower, and money.

In our present dilemma the Fish and Game is participating in the Missouri planning as a supplier of data and a critic, a situation that is not desirable or advantageous to our own fish and wildlife management philosophies, but the only alternative at this late date.

Fish and Game participation in the Columbia-North Pacific study, which has later deadlines, is somewhat more involved since the department has agreed to write the report for its particular subregion which includes all of Montana west of the Continental Divide. The success of this participation depends upon obtaining funds necessary to accomplish the task. It is estimated that to compile this report we must have approximately $36,000.00 a year for the next two fiscal years. Needless to say, the success or failure of this project hinges on our request for additional revenue. Attempts to secure this funding from federal sources have to date been totally unsuccessful.

It appears that the only alternative open to the Fish and Game in the face of the endless procession of planning groups, is to begin formation of our own long range fish and wildlife plan. Hopefully, by relying heavily on personnel currently working for the department the costs of evolving a long range plan can be kept at a minimum and wide participation will lead to wide acceptance of the finished product.

It is the department's intention that its participation in comprehensive planning, now a necessity due to federally motivated projects, can ultimately result in a complete statewide fish and wildlife plan. Ideally with a comprehensive plan for fish and wildlife enhancement first presented to the public and then aggressively pursued by our department the "developers" of other interests will find themselves in the unenviable position of being critics right from the start.

POTHOLE BLASTING AT FOX LAKE, MONT.

Some potentially good waterfowl habitat in the northeastern part of Montana was rocked last fall by blasts which sent tons of muck and mud into the air and left gapping holes in the landscape—and all for the good of the waterfowl and sportsmen who hunt them.

There are relatively flat, semimarshy areas in northeastern Montana that raise many broods of ducks during years when old-man weather dumps enough moisture to provide standing water through the spring and summer. All too often, however, moisture isn't sufficient and these areas dry up too soon; the broods don't survive, and the sport they could provide is lost.

The problem is being approached in a unique way by game management personnel in District 6. Powerful explosives are being set off in the potentially good nesting areas to blast potholes which will be deep enough to hold water through even a dry summer. It is hoped that these artificial potholes will provide habitat to assure survival of many ducklings that otherwise couldn't make it.

A system of potholes that provide open water into the fall hunting season should also be a boon to the sportsman who pulls a successful sneak through the cattails or sits over a few well-placed decoys.

The explosive used to do the job is commonly used by farmers for another purpose. It is ammonium nitrate fertilizer which is non-explosive in the dry form, but when mixed with the right amount of diesel oil and detonated with a stick of dynamite, it explodes with a blast that catapults the heavy muck of the marsh high into the air.

Dick Trueblood, District 6 Game Manager places ammonium nitrate in the dry lake bed prior to blasting. The parched earth shows false promise of waterfowl habitat in the season past.

From one to six 50-pound sacks were detonated at a time during the blasting this fall. Each sack of explosive was triggered with a stick of dynamite and if more than one charge was set off at a time, they were connected by a length of prima-cord. The prim-cord was detonated by a blasting cap attached to a length of fuse long enough to allow plenty of time to clear the area.

When the fuse burns to the blasting cap, a whole chain of events takes place in a split second: the cap ignites the prima-cord, the cord in turn sets off the dynamite, and the dynamite charge triggers the main blast of ammonium nitrate. The resulting holes in the dry lake bed range from small ones twenty feet in diameter to the big ones measur-

Dale Graff, Warden at Sidney, gives scale to a newly blasted pothole.

ing up to eighty feet long, twenty feet wide, and six feet deep.

The whole process is relatively simple and economical, and the resulting permanent open water should be a welcome sight to waterfowl returning to the area next spring.

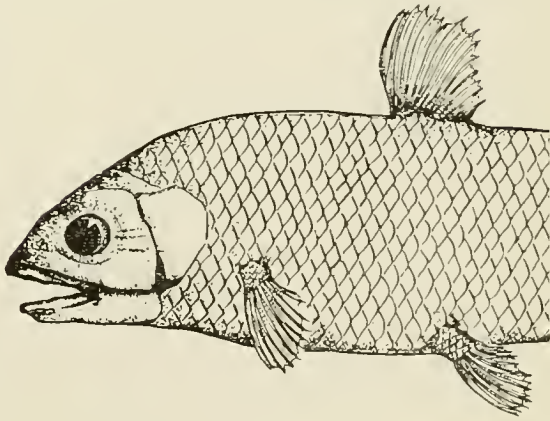
COELACANTH

The least likely thought to pop into a fisherman's mind as he creels a finny specimen would be that he may have destined for the frying pan one of his distance relatives. If you think there's something fishy about this statement, observe the following which includes excerpts from an article that appeared in the "Australian Natural History," March, 1966.

One of the most fascinating zoological findings of the twentieth century was made a few days before Christmas in 1938 off the east coast of South Africa. Captain Goosen, the skipper of a small fishing trawler, had decided to make one trawl haul on a usually barren bank just before returning to the town of East London. The trawl that came up contained a mixed bag of edible fish and shark, and one large blue fish of a type that had never been seen before by Captain Goosen or his crew. The fish, 5 feet long and weighing 127 pounds, was a living coelacanth, a strange relic of a long-past age.

Fossil coelacanths are well known. They occurred in the rocks of the Cretaceous age in abundance, usually being small, probably freshwater fishes. At that time, some 60 million years ago, dinosaurs dominated life on land, including the greatest of the flesh-eating dinosaurs which grew up to 20 feet high and 40 feet in length. The sea was then inhabited by long slender marine reptiles with wing-spans of over 20 feet, and a large swimming flightless bird that caught fish in its long-toothed jaws. It was thought that the coelacanths had died out at the end of this period, and no further fossils have been found through rocks laid down in the next 50 million years to the present.

The Coelacanth is interesting to us not only as a living link with the dim past, but also through its distant relationship with ourselves. The coelacanth belongs to the group Crossopterygii, or lobe-fined, fishes. The structure of the crossopterygian fin differs greatly from that in modern bony fishes. The fin structure is more similar to a limb and has a single stout bone attached to the girdle and is not a broad-based fin with a number of parrellel bony or cartilaginous bars as in most other fishes. From crossopterygians that forsook the water and used their lobed fins to aid in locomotion de-



Undina, a fossil coelacanth.

George Taylor Sr.

HUNTER SAFETY INSTRUCTOR TEACHES OVER 1,000

George Taylor, Sr. of Butte, Montana has received some well-deserved acclaim for being the first hunter safety instructor in Motnana to have tutored over 1,000 youngsters in the safe handling of firearms. Taylor has been active since 1958 in the firearms safety program. Montana law requires Montana youths to have had qualified instruction in the use of firearms before they are eligible to purchase a game hunting license.

Taylor, like the many other hunter safety instructors in Montana, are providing an exceptional public service. This voluntary force of instructors give of their time and talents without pay.

veloped the early amphibian forms and eventually the evolutionary lines leading to man.

In March of 1939 the Illustrated London News published a photograph of the coelacanth, and a brief description of it and of fossil forms, under the title "One of the Most Amazing Events in the Realm of Natural History in the 20th Century." However, the world was moving rapidly towards the Second World War and all ideas of finding further coelacanths stopped. It was not until 1948 that Professor Smith, (an expert of fishes from Capetown, Africa, who definitely identified the first fish) was able to begin the search for the home of the coelacanths. In this year it was agreed to give a 100 frank reward for the first two coelacanths to be found. A pamphlet which contained photographs of the coelacanth and information concerning the reward, and the reason for wanting the fish, in English, Portuguese, and French was sent sent all over East Africa. For four years this bore no fruit. Then in 1952 Professor Smith and his wife were collecting fishes on the islands off Zanzibar and gave pamphlets to a sturdy, adventurous trader called Eric Hunt. Captain Hunt traded in a small schooner between the mainland of Africa and the Comore Islands, which lie in the wide channel between Madagascar and the mainland of Africa. He was extremely interested in the possibility of finding the coelacanth, and when he next reached the Comores passed the pamphlets around in the villages and also interested the Governor in the story. He then returned to Zanzibar and met the Smiths again. Mrs. Smith gave him more pamphlets and, as he sailed from the wharf, he laughingly said, "If I get a coelacanth I shall cable you."

Second Coelacanth Found. Within ten days the second coelacanth had been found. Professor Smith was so determined to get the second coelacanth that he persuaded the then Prime Minister of South Africa, Dr. Malan, to put an Army plane at his disposal, and flew to the Comores to fetch it. Smith had truly found the home of the coelacanth, for since that time some 20 or so have been caught in these steep-sided volcanic islands. The natives there seem to know the fish and catch it on long hand lines while fishing for other species.

Although much work has now been done on the anatomy of the coelacanth, we still know little of this grand old man of the sea. None have been kept alive in aquaria. None have been observed underwater in their natural habitat. The Comores remain a beautiful and sleepy group of islands with no research laboratory of scientists to study this, perhaps the most fascinating of all living fishes. The only evidence on the islands which can be seen by the visitor of the catches which roused the scientific world is a specimen in the simple building at the end of the same dusty air strip on which Professor Smith landed years ago in high excitement.

THE HUNTING FACTOR

The species of wildlife that are endangered in America are not game species. The population of blue birds, which has never been hunted, has declined drastically the last decade. Had this been a game species, hunters would no doubt have put up millions of dollars to find the cause of the decrease and remedy it.

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